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A Rare Foundation: Spending It All and Closing Down

In defiance of the natural laws of bureaucratic and personal self-preservation, one of the major philanthropies in biomedical research, the Whitaker Foundation, has voluntarily decided to spend down its now-\$400 million endowment and go out of business in a torrent of grants over the next 10 years.

The decision, arrived at three years ago, drew little attention then, but the countdown to oblivion is in progress and, according to design, the money is pouring out from Whitaker, which last year ranked 64th in endowment size among American foundations. The plan to terminate the Whitaker Foundation, and the jobs of its 18-member staff, is viewed with puzzlement, if not horror, in the cushy world of big-league tax-exempt, non-profit foundations, where spending, generally at the legal minimum of 5 percent of assets annually, virtually guarantees institutional immortality.

The Whitaker rationale is that it can do the most good for its chosen field, biomedical engineering, by providing critical

masses of money over a relatively short period and then getting out of the way before survival motives infest the operation. The alternative would be eternal dribbling out of small annual sums.

The decision to spend it all is underpinned by a fear, as stated by Whitaker chairman, G. Burt Holmes, in the foundation's 1995 annual report, that "private foundations often continue after they have achieved their purpose, principally to maintain their bureaucracy." Holmes added that the late founder, industrialist Uncas A. Whitaker, while aiming "to benefit mankind ... was not inclined to create an institution that would perpetually honor his name."

Since 1976, Whitaker, headquartered in Rosslyn, Va., near Washington, DC, has been the largest private source of support for biomedical engineering research and training, with awards, so far, totaling some \$180 million spread among scores of university departments and medical schools.

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Defying Gloomy Forecasts, R&D Budgets Rise Slightly

Research and development not only eluded widely predicted fiscal catastrophe but actually gained a bit in the Congress that just went home. Left behind are the questions of whether the fears loudly voiced in the research community were realistic, and, if so, what intervened to spare R&D from savage reductions. And then there's the question of whether the vows of frugality heard in the Presidential campaign will actually lead to the promised reductions.

Given the Congressional Republicans' blood-oath commitment to shrink federal civilian discretionary spending by 33 percent by the year 2002, and to increase defense spending at the same time, the fears were indeed realistic. And there was no solace for the scientific community when President Clinton countered with a budget-reduction plan of about 20 percent. The choice was between worse and worse, according to Rep. George Brown, Capitol Hill's grumpy elder statesman of science.

The fiscal 1996 budget, the first to be produced by the Republican Congressional majority elected in 1994, raised defense R&D by about \$600 million, to a total of \$38.4 billion, while cutting civilian R&D by only \$400 million, to \$32.6 billion. Following several years of stagnant appropriations for civilian research agencies, the downward budget and the accompanying vows of heavier cuts ahead nourished the insecurities that easily thrive in the science establishment.

The seeming imminence of financial disaster impelled scientific leaders and bench scientists to an unprecedented volume of lobbying in Washington. The NIH community, as

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In Brief

Lest scientists overestimate their place in the political firmament, let it be noted that the Dole campaign has stiffed two journals seeking the candidates' views on research-related issues. However, Bill Clinton's folks obliged, delivering separate potages of warmed-over rhetoric from the copious files of the White House Office of Science and Technology Policy. The *Journal of NIH Research*, which published its Clinton response in September, says Dole's staff promised but never delivered. The October *Physics Today* carries Clinton's responses to 10 questions, with a note stating, "The Dole campaign did not respond at all." However, *Science*, journal of the AAAS, scored with both Clinton and Dole, publishing their responses to questions in the issue of October 18.

The Name Game: The new budget for the National Institutes of Health provides startup money and a name for the next big building on the Bethesda campus. It's to be the Mark O. Hatfield Clinical Research Center, honoring the beneficent, retiring Chairman of the Senate Appropriations Committee. But what does that mean for the old facility that the new Center is intended to replace, named for a prior Senate Appropriations Chairman, the Warren G. Magnuson Clinical Center (sans "Research" in the title, please note)? Speculating on a solution, an NIH official told SGR: "There could be two facilities."

Twenty percent of the PhDs awarded in physics in 1995 "took eight or more years of full-time equivalent study," according to the American Institute of Physics, which also reported that fewer than 5 percent got the degree in four years. The marathon factor in physics "has been gradually increasing for 30 years," the AIP noted.

...Elsewhere, Soaring Endowments, Skimpy Payouts

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The programs range over a wide field of basic and applied research, ultimately aimed at the development of artificial skin and blood vessels, organ replacements, and other body parts. Among the foundation's major awards are \$5 million each to Georgia Tech and the University of California at San Diego, and \$750,000 each to Rice University and the University of Michigan.

"If we're successful when we terminate in 2006," Miles J. Gibbons Jr., President of Whitaker, told SGR in a recent interview, "biomedical engineering will be established."

Gibbons said the Whitaker spending plan, subject to upward modification because of the soaring stock market, calls for raising annual outlays to universities and hospitals from \$32 million in 1995 to \$50 million this year, \$70 million in 1999, and then spending out the balance by the year 2006. Acknowledging the uncertainties of plotting the course to zero in today's rising stockmarket, Gibbons whimsically remarked, "A lot of people say I get up in the morning and hope there's a recession."

Other foundations have expired in accordance with directives of their founders, as will be the case with the Miami-based Lucille P. Markey Charitable Trust, also a benefactor of biomedical research, whose 15-year lifespan will end in June 1997. And inept investment management has sunk several foundations.

However, Whitaker's voluntary decision to spend out its endowment is rare and perhaps unique.

The termination strategy was allowed for but not dictated in the trust established by the founder, Uncas A. Whitaker, creator of AMP, Inc., a \$5 billion-a-year worldwide manufacturer of electrical connectors. As specified by Whitaker, the foundation came into being in 1976, a year after his death, with a broad mandate to support "charitable, scientific, literary or educational purposes." Whitaker also suggested, but did not require, a maximum 40-year life for the foundation.

Without specific directions for focusing its largess, the board, which included several Whitaker family members, took its cue from the founder's longstanding interest in promoting collaboration between medicine and engineering. During his lifetime, for example, Whitaker helped establish the Harvard-MIT Program in Health Science and Technology and provided money for the Whitaker Building for the Life Sciences at MIT. Nonetheless, research and development in biomedical engineering was still in its infancy at the time of his death.

With its field agreed upon, the foundation then followed the usual course of consulting expert advisory committees to develop programs and rate applications. Almost at once, the new-born Whitaker Foundation became the main nurturer of biomedical engineering. NIH has since come into the picture, with funding estimated at \$300 million in 1993, including \$80 million described as "basic bioengineering

research." A survey of former Whitaker fellows and investigators found that 177 subsequently received NIH grants.

The planned termination of the Whitaker Foundation raises the rarely discussed question of whether society benefits from immortality for the hundreds of foundations in the multi-billion-dollar non-profit, tax-exempt sector. Answerable to no one but pussycat board members who are usually well paid to attend brief quarterly meetings, the foundation industry exists without independent scrutiny—at tax payers' expense. In the major leagues of philanthropy, fees of \$30,000 to \$50,000 a year are standard for sitting through and rubber stamping the presentations of the staff careerists who actually run the outfit.

Data collected by SGR show that in these hard times for scientific research and other good causes, some of the giants of tax-exempt philanthropy are parcelling out shamefully small slices of booming endowments. In its 1995 fiscal year, for example, the Ford Foundation disbursed \$339 million from an endowment of \$7.4 billion. The estimate for this year is disbursements of \$375 million from an endowment of \$8 billion.

The biggest private bankroll in biomedical research, the Howard Hughes Medical Institute, is similarly tightfisted with its bulging endowment, which reached \$8.2 billion in Hughes' 1995 fiscal year. Disbursements from that bundle totaled \$346 million. Since 1990, the Hughes endowment has increased by \$2.6 billion, while expenditures during that period totaled \$1.5 billion.

The paltry payouts are justified on the increasingly implausible grounds that an economic downturn could leave the foundations without the resources to meet long-term commitments. Senior executive salaries at Hughes and other major foundations are in the \$300,000-\$500,000 range.

The plodding, safe choices that many foundations favor in spending their money recall the rebuff that Samuel Johnson delivered to a nobleman who ignored him when he was unknown and sought his company after he achieved literary celebrity:

"Is not a patron, My Lord, one who looks with unconcern on a man struggling for life in the water, and, when he has reached ground, encumbers him with help?"—DSG

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... Misguided Diagnoses of Science's Budget Plight

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usual, produced the loudest drumbeats, and, as usual, found the most sympathetic reception on Capitol Hill.

Overall, the impact of the science campaign isn't measurable amid the cacophony of lobbying by interests bigger and more politically astute than science. But as never before, members of the House and Senate heard from the scientists back home. The messages were reinforced by appeals from high-tech industry executives, many of whom, having pruned their corporate research budgets, wish to have Uncle Sam underwrite the vigor of the American research enterprise.

The political response of the scientists was well underway when, surprisingly, the second year of the Republican Revolution wilted under popular perceptions—fed by the White House and Congressional Democrats—of scrooge-like indifference to public needs. Housing, education, veterans benefits and many other civilian programs benefited from the changed political atmosphere, and tagging along with them were the threatened civilian research agencies. The latest appropriations show the difference.

For the newly commenced fiscal 1997, money voted for civilian and military R&D rose to \$74 billion, an increase of nearly \$3 billion, or 2.9 percent, over 1996. Defense research, including weapons work by the Department of Energy, was the big winner, with an increase of \$2 billion, for a total of \$40 billion—55 percent of all federal R&D.

On the civilian side, the increase was far more modest, and maldistributed. But, overall, the appropriations were up, rather than in the downward direction specified in the 1997 Congressional spending plan, increasing by \$879 million, to a total of about \$33.5 billion. Reflecting Congressional passion for health research, \$785 million of the increase was bestowed upon the National Institutes of Health, leaving very little for the others.

But by the measure of compared to what, the outcome was pretty good. The sums voted for civilian R&D for the newly commenced fiscal year 1997 are about \$1.3 billion above the Republican-sponsored budget plan, according to an analysis produced last week by the American Association for the Advancement of Science. The AAAS also noted that the latest budget provided modest increases for all major R&D agencies except NASA and the Department of Interior. And adding up the R&D budgets from 1994 through 1997, and calculating the inflationary effects, the AAAS analysis arrived at a net loss in purchasing power of merely 1.9 percent.

The indispensable ingredient in the turnabout in R&D fortunes was public souring on Gingrich and company, especially after the government shutdowns last winter. Polls gave Clinton heart to push for increases, rather than decreases, in selected domestic spending, including civilian R&D. As Congressman Brown pointed out in a review last month of Congressional action on R&D budgets—mockingly subtitled "The Postponed Revolution"—the White House backed its budget designs with veto threats, confident

that the Republicans feared the onus of another government shutdown.

By Brown's reckoning, appropriations for civilian research in fiscal 1996-97 were \$6.5 billion above the Republican budget resolution—far above the AAAS estimate. In his account, the "windfall" can be attributed to: "(1) a small number of senior Republicans on the House and Senate Appropriations Committees who understood the value of R&D investments, (2) the solid support of the Democratic caucuses in the House and Senate for these programs, and (3) the firm commitment of the President to high-priority R&D programs, as conveyed in 'Statements of Administration Policy' and veto messages throughout the FY 1997 appropriations negotiations."

The spartan budget plans of Congressional Republicans and Bill Clinton now appear destined for the capital's deep memory hole, especially if Clinton is reelected. But that doesn't mean the end of stagnation for research budgets. With tax increases a sure route to political suicide, the sector of the federal budget that supports civilian discretionary spending will remain severely strained, leading to even more intense competition for shares. And that's the sector that finances civilian R&D.

Research does not lack political good will or recognition of its value to the economy. However, that may not be enough to make up for the lack of political muscle. The recent lobbying efforts were prodigious by the normal standards of science's political involvement, but were fairly tame in terms of what moves politicians—money and votes. The tallying by the newly organized Science Watch [SGR, October 1] of pro- and anti-science votes in the House was botched in execution and, with uncertain consequences, ticked off some members who rate themselves supportive of science. But, conceptually, it was a step in the right direction for going political, which may be unavoidable for maintaining a decent flow of government money for civilian R&D.

A real but little-recognized danger for the scientific enterprise is in the hallucinatory analyses that many senior statesmen of science routinely offer to explain the fiscal plight of R&D, particularly basic research. The chorus runs like this: the end of the Cold War undermined support for science, and attempts to build a new base are thwarted by profound ignorance of science, and even hostility, among the general public. Solution: more science education, to enlighten the public and its political leaders about the necessity for big R&D budgets.

The financial realities, as reported in *Science & Engineering Indicators 1996* (National Science Board), provide weak and mixed support for the Cold-War thesis, while two decades of opinion polls indicate that, ignorant or not, the public looks favorably upon science and its federal support.

Dating the end of the Cold War from the removal of the Berlin Wall in 1989, we find that federal R&D expenditures

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Engineering Academy Negotiating Cash Settlement

Ousted President Harold Liebowitz was absent, with whereabouts unknown even to old colleagues, at the annual meeting of the National Academy of Engineering October 2-3. And NAE officials continued their public silence about reports that Liebowitz is threatening a lawsuit if not given a satisfactory cash settlement in recompense for being removed from office in June following a landslide recall vote by the NAE membership [SGR, October 1].

In fact, he is seeking a settlement and threatening litigation if he doesn't get what he wants, according to the NAE's latest financial statement, a copy of which has been obtained by SGR. The statement, which refers to the NAE by its corporate title, the National Academy of Engineering Fund, contains a supplementary note headed "Contingency-Threatened Litigation." After summarizing the steps taken by the NAE Council and the membership to remove "the incumbent"—name unstated—the note continues:

"This officer, both in person and through his attorneys, has informed the Fund that, based on these June 1996 actions and related actions, and in the absence of a settlement, he will initiate litigation against the Fund, and against related organizations and individuals, alleging breach of contract, wrongful discharge, and other claims.

"Settlement discussions with this officer are in progress," the note continues, adding: "These discussions may or may not result in a settlement, and at this point, it is impossible to predict what exposure the Fund may have if a settlement is reached, or failing a settlement, if litigation against the Fund and other defendants should then be initiated. Some portion of any loss may be covered by insurance. In the circumstances," the note concludes, "no provision for any liability

that may result from the matter has been recognized in the accompanying financial statements." The amount sought is not stated, but it could be substantial if Liebowitz is seeking fiscal balm for the five years that remained in his Presidential term at the time of his ouster. Just prior to that, he told SGR he had retained Williams & Connolly, a famously combative Washington law firm, to represent his interests.

When he was elected last year, according to a letter the NAE Council sent to the members during the ouster fight, the Council offered him what it described as the same package of pay and perks received by the previous NAE President: a salary of \$270,000 a year, a leased car for business and personal use, and \$30,000 for expenses. Liebowitz turned that down, the Council told the members, and sought \$300,000 in salary and deferred compensation, a car and driver, and occupancy of a \$600,000 apartment that he wanted the NAE to purchase at the Watergate complex. The Council rejected his proposal, but what deal, if any, was finally agreed upon has not been publicly stated.

In past times, Liebowitz often initiated contact with the press and was prompt to reply when called, especially as his lone-wolf style of operations grated on the old boys and staff of the NAE. But after leaving the NAE building at the end of June, immediately following announcement of the 1179-179 vote to remove him from office, he's not been heard from.

NAE Interim President William Wulf continues to draw favorable reviews, especially for his open, cooperative manner with staff and the NAE's senior partner, the National Academy of Sciences. In and around the NAE, it's generally agreed that the NAE has emerged from the Liebowitz affair without permanent damage.

Budget Battles

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In current dollars stood at \$59.8 billion in that year and, with slight ups and downs over the next six years, at \$60.4 billion in 1995.

In constant 1987 dollars, expenditures did drop sharply, from \$55.2 billion in 1989 to \$46.9 billion in 1995. But during that same period, national R&D spending from all sources—government, industry, foundations, and academe's own funds—went up substantially: in current dollars, from \$141 billion to \$171 billion, and in constant dollars, from \$130 billion to \$132 billion.

Basic research, which is routinely depicted as the most misunderstood and vulnerable sector of research, fared quite well, with total national expenditures, in current dollars, rising from \$21.2 billion in 1989 to \$29.5 billion in 1995. In constant dollars, expenditures increased from \$19.6 billion to \$22.9 billion. The share provided by the federal government rose during the 1989-95 period from \$13.1 billion to \$17 billion, in current dollars; and from \$12.1 to \$13.2 in constant dollars. Interestingly, the fastest-growing research agency in the federal government is the one that was furthest from Cold War motivations—the NIH.

Meanwhile, opinion surveys show little variation in the public's long-running favorable attitudes toward science, scientists, and federal support of science. In 1981, for example, 31 percent of the respondents agreed that the federal government is spending "too little" on scientific research, while 18 percent opted for "too much." In 1993, the responses on that same issue were 34 percent "too little" and 19 percent "too much."

Though the aforementioned data are either known or easily available to the statesmen of science and their Washington-based *apparatchik* ghosts, the assemblages of the scientific community still ring with chimerical analyses of fiscal woes arising from the end of the Cold War and a dense, unsupportive public.

The truth is that there's a lot of competition for the wedge of the budget pie that supports R&D, and in present political circumstances the pie will, at best, grow only slightly. The threat to science budgets is no longer in the soon-to-be-forgotten long-range spending plans of Republicans and Democrats. The battle that's shaping up is over shares of the discretionary budget. And, for the scientific community, the first step toward succeeding in that battle is to shed its delusions about the origins of its fiscal plight.—DSG

Non-Profit Pay Checks

Pharmaceutical Research and Manufacturers of America

Rich and heavily regulated by the federal government, the pharmaceutical industry naturally pays close attention to Washington. Its collective interests there are attended to by one of the best-heeled lobbies in town, the Pharmaceutical Research and Manufacturers of America (PhRMA, as it abbreviates it), which represents the research-based segment of the industry, as opposed to the copycat generic manufacturers.

Formerly called the Pharmaceutical Manufacturers Association, the PhRMA employs a staff of 80 that operated last year on a budget of \$39.5 million. Salaries at the top are right up there with the highest-paying organizations in the non-profit league, according to the PhRMA's most recent tax return, for 1994, filed in November 1995 for the fiscal year that ended June 30, 1995.

Gerald J. Mossinghoff, President of the PhRMA, was paid \$478,490, plus \$63,019 in benefits and deferred compensation. The comparable figures for Mossinghoff on the 1993 return are \$452,500 and \$83,533; on the 1992 return, \$440,192 and \$61,897. No expenses were reported for Mossinghoff or others listed on the tax returns.

For Bruce J. Brennan, who left the post of Senior Vice President and General Counsel during the year, the 1994 return lists a "part year" salary of \$329,546 and \$47,957 in benefits. On the 1993 return, the full-year figures for Brennan are \$237,114 and \$50,863; on the 1992 return, \$224,761 and \$34,915.

Part-year figures are also listed on the 1994 return for Russel A. Bantam, who became Senior Vice President and General Counsel in January 1995, halfway through the PhRMA fiscal year—salary \$122,405; benefits, \$22,389.

Those are all the salary and benefit figures that the PhRMA is required to report, in accordance with IRS regulations concerning its non-profit, tax-exempt status under the Internal Revenue Code. As a "business league," a designation that applies to chambers of commerce, industrial associations, etc., the PhRMA comes under section 501(c)(6) of the Code, which requires less extensive data on salaries than 501(c)(3), the section that applies to religious, philanthropic and educational organizations, scientific societies, etc. The C-3s, as they're called, are required to list the salaries, benefits, and expenses of the five highest-paid employees, in addition to providing the same data for officers, directors and trustees.

According to the PhRMA's latest financial report, membership consists of 63 pharmaceutical firms, including Merck, Eli Lilly, Pfizer, Sandoz and other giants of the industry, plus 25 firms listed as "Research Affiliates," and a mixed bag of several dozen organizations under the heading of "Associates."

With ample financial resources at its command, the PhRMA is a potent force in its efforts to tame the Food and

Drug Administration through lobbying in Congress and advertising aimed at the general public. The 1994 tax return reports \$9.3 million in advertising expenditures, \$2.9 million in "designated project funds," \$1.4 million for "special projects," and \$2.6 million for consultants.

The PhRMA's latest financial report describes the work of the organization's "FDA Reform Key Issue Team" and its Capitol Hill drumbeating on the theme "The Patient Is Waiting."

"In the past year," the report states, "patients have made more than 350 visits to Members of Congress and staff, sharing their concerns about the slow pace of FDA-regulated drug development. Patients have also testified before Congressional committees and participated in rallies for FDA reform on the Capitol grounds. In addition," the report continues, "an Open Letter to Congress signed by 968 organizations and individuals made the point that patients are tired of waiting—they want meaningful FDA reform now."

Previous SGR Pay Checks: Howard Hughes Medical Institute, April 15; National Academy of Sciences, May 1; American Chemical Society, May 15; American Psychological Association, June 1; American Association for the Advancement of Science, June 15; American Psychiatric Association, July 1; Association of American Medical Colleges, August 1; American Council on Education, September 15; Association of American Universities, October 1.

Next: American Heritage Foundation

Job Changes & Appointments

Jack Ward Thomas, Chief of the Forest Service, in the US Department of Agriculture, announced last week that he will resign in November to teach at the University of Montana. Thomas, the first wildlife biologist to head the Service, was rated a strong environmentalist when the Clinton Administration appointed him three years ago, but increasingly was at odds with both the White House and the timber industry over forest-management policy.

Donald H. Luecke, an old hand at the NIH Division of Research Grants (DRG), and Acting Director there since the retirement of **Gerald Green** last year, has been appointed Deputy Director of the National Institute on Deafness and Other Communication Disorders. He moved to the new job this month, following the appointment of **Elvira Ehrenfeld**, Dean of the School of Biological Sciences at UC Irvine, to head the DRG. Ehrenfeld will serve as a consultant to NIH before coming on board fulltime in January.

Dennis B. Fenn, Deputy Director of the National Biological Service (NBS) at the time of its termination by rampaging Congressional Republicans last year, has been appointed to the new post of Chief Biologist of the US Geological Survey, which inherited the remnants of the NBS.

June E. Osborn, former Dean of the University of Michigan School of Public Health, and an active figure on the Washington health-policy advisory circuit, has been appointed President of the Josiah Macy, Jr. Foundation.

White House Reviewing University-Federal Ties

In response to what it describes as many reports that "the nation's universities are going through a period of stress," the White House has initiated a multi-agency Review of the University-Government Partnership. The completion date is set for next June, in time for influencing the first full post-election budget-planning cycle.

The review, announced last month at one of the infrequent meetings of the President's Committee of Advisors for Science and Technology, will be conducted by a task force of the Committee on Fundamental Science, which comes under the National Science and Technology Council. The Committee is co-chaired by the Directors of the National Science Foundation and the National Institutes of Health, and the Associate Director for Science at the Office of Science and Technology Policy, Ernest J. Moniz.

The White House announcement said the task force will work with the federal research agencies "to assess their policies, programs and regulations related to the government-university partnership, education, and research administration."

Typifying the problem it's addressing, the announcement added that recommendations for "higher priority

budgets, programs, or policies" must be accompanied by "a strategy on how these recommendations can be accommodated within and among the rest of the agency's research and development or education portfolio."

Bioethics Commission Meets

The new National Bioethics Advisory Commission held its first meeting on October 2 and decided to focus its initial activities on protection of human research subjects and problems arising from the availability of human genetic information.

The 17-member Commission is chaired by Harold Shapiro, President of Princeton University. Serving as Acting Executive Director is F. William Dommel Jr., an attorney formerly with the National Institutes of Health Office for Protection from Research Risks.

The Director of Communications is Patricia Norris, formerly with the Office of the Assistant Secretary for Health in the Department of Health and Human Services.

The offices of the National Bioethics Advisory Commission are at 6100 Executive Boulevard, Rockville, Md. 20892; tel. 301/402-4242; fax 301/480-6900.

In Quotes: Science—Missing in Modern History Texts

From an address, "Science: The Endless Frontier" Revisited, by Jonathan Cole, Provost and Professor of Social Science, Columbia University, October 3 at the annual meeting of the National Academy of Engineering.

Given the extraordinary contributions of science and technology to contemporary culture and the economic well-being of Americans, one might expect some significant representation of science and technology, and the processes of scientific discovery, in the [historical] works that describe recent American history. To explore what actually exists in those works, I asked three distinguished historians at Columbia to give me the titles of the leading books in American history covering the period from World War II to the present. I also obtained the titles of leading American history textbooks that were used in college and high school courses on the subject....

[The authors] represent a group of leading American historians, not ones of limited ability. And yet, to say that there is a paucity of references to and discussions of science and technology in the works, could only be considered an inspection to be a gross understatement.

For example, in Michael Barone's *Our Country: The Shaping of America from Roosevelt to Reagan*, there is not a single reference to science and technology topics in the index. There is space devoted to the "upheavals" of the 1960s and some references to popular culture, and counter-culture, including Elvis Presley, premarital sex and recreational drug

use. But you won't find discussions of the discovery of the double-helix by Watson and Crick, or for that matter, any aspect of the biological revolution, nor of the plate tectonics revolution, nor of the development of the laser, nor of the transformational effects of computer and telecommunications on American society....

William Chafe's exceptional work, well-known and widely used at colleges and high schools, *The Unfinished Journey: America Since World War II* ... has a two-page discussion of technological breakthroughs ... and Chafe does say "the government served as the primary sponsor for these breakthroughs"—but that is all he says....

William Leuchtenburg ... has but one reference to technology on one page of his major work, *A Troubled Feast: American Society Since 1945*. There is a two-page discussion of medical achievements, limited to antibiotics (5 lines) and to a picture of a child receiving a polio shot....

James T. Patterson, in his recently published 829-page megabook, entitled *Great Expectations: The United States, 1945-1974*, does in fact have thirteen references to technology in his index, grouped by decade. There is one reference to the NIH as well. But almost all these references are simply cursory, and without any effort to develop in the young reader an understanding of the processes of discovery, of technology transfer, or of the ways in which science and technology has been one of the most significant causal forces in the economic and social transformation of modern American society in the postwar period.

In Print

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From the Federation of American Scientists (FAS):

F.A.S. Public Interest Report (bimonthly, \$25 per year), addresses national security and public issues with major scientific and technical ingredients. The September-October issue is largely devoted to a harsh critique titled "Star Wars—Clever Politics in the Service of Bad Policy," by John Pike, the FAS's resident specialist on space, a master of pithy analysis, often seen on TV and quoted in the press.

Order from: FAS Public Interest Report, 307 Massachusetts Ave. NW, Washington, DC 20002; tel. 202/546-3300; fax 202/675-1010.

From the National Academy of Sciences:

World-Class Research and Development: Characteristics for an Army Research, Development, and Engineering Organization (72 pp., a limited number available at no charge), an inane, plodding exercise in semantic hairsplitting, arising from the desire of the Army's Natick (Mass.) Research, Development and Engineering Center to be "world class." In dogged pursuit of this foggy goal, the Army sought the guidance of the Academy, which established a two-part study, the first (described in this report), aimed at defining world class, with the second, still to come, prescribing how to achieve it. Noting that the "usage panel" of expert advisers to *Webster's Collegiate Dictionary* was seriously divided on the meaning of "world class," the committee sought guidance from "representatives of industry, academia, and government," and also "reviewed a large amount of material on the subject." One of the consulted sages, the report states, "explained that world-class is not to be confused with best-in-class." Another explained that "R&D laboratories 'need to focus more on R&D outcomes' rather than 'outputs.'" The committee concluded that a world-class R&D organization possesses "competitive advantages" that result from "excellence in five key attributes" also known as "pillars," defined as "customer focus," "resources and capabilities," "strategic vision," "value creation," and "quality focus." From the pillars, the committee deduced 25 "characteristics [that] are most relevant to an Army RD&E organization." And so on. The report was produced by the Academy's Standing Committee on Program and Technical Review of the US Army Natick Research, Development and Engineering Center, chaired by Joseph F. Sockup, of Science Applications International Corp., McLean, Va.

Order from: National Academy of Sciences, Board on Army Science and Technology, HA-258, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-3118; fax 202/334-2620.

Driving Innovation Through Materials Research: Proceedings of the 1996 Solid State Sciences Committee Forum (36 pp., no charge), from a meeting in February, policy papers by senior government research administrators and others surveying the political landscape for R&D. Taking place just prior to the unexpected unraveling of the Republican Revolution, the proceedings reflect a scientific gloom

that has since been lightened by a good run of budgets. But the basic message in many of the papers remains valid, namely, that a vise is closing on federal spending. Among the participants: Neal Lane, Director of NSF; Arati Prabhakar, Director of NIST; Martha Krebs, Director of the DOE Office of Energy Research, and Anita K. Jones, the Pentagon's Director of Research and Engineering.

Order from: National Academy of Sciences, Solid State Sciences Committee, HA-562, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-3520; fax 202/334-2791.

From Gale Research:

International Research Centers Directory 1997 (1360 pp., \$449), ninth edition, listing 8145 scientific research organizations, scholarly institutes, etc., government and private, in over 150 countries, (not including the US, which is covered in *Research Centers Directory 1996-97* [2 volumes, 2486 pp., \$500], and *Government Research Directory 1996-97* [592 pp., \$465]). Entries in the *International* directory are under Life Sciences, Physical Sciences and Engineering, Private and Public Policy and Affairs, Social and Cultural Studies, and Multidisciplinary and Coordinating Research Centers. Data includes address, phone and fax numbers, senior executive, research aims, size of staff, etc.

Order from: Gale Research, 835 Penobscot Building, 645 Griswold St., Detroit, Michigan 48226; tel. 1-800/877-4253 or 313/961-2242; fax 313/961-6083.

From the National Health Council:

Volunteer Health Agencies: Revenues and Expenses (24 pp., \$10 for non-Council members), describes the research, education and patient-service programs of 39 big and little health agencies, and provides some financial data.

Order from: National Health Council, 1730 M St., Suite 500, Wash., DC 20036; tel. 202/785-3910; fax 202/785-5923.

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In Print

Official reports and other publications of special interest to the research community

(Copies of publications listed here are available from the indicated sources—not from SGR)

From the Office of Research Integrity, US Department of Health and Human Services:

Survey of Accused but Exonerated Individuals in Research Misconduct Cases (115 pp., no charge), a sketchy examination of an important question: what happens to researchers who are acquitted of misconduct charges? Exoneration, the report states, is the outcome in about 70 percent of the cases in the ORI system, which mainly deals with research supported by the National Institutes of Health. But the survey, conducted for ORI by the Research Triangle Institute (RTI), obtained only 51 completed questionnaires from a field of 105 exonerees. From this modest base, the surveyors report that 94 percent of the respondents were still conducting research; 60 percent experienced some negative effects from the allegations, 40 percent reported none, while 6 percent "felt that the incident had a positive impact on their field of research"—an intriguing finding presented without elaboration. Among the non-respondents to the questionnaire were 22 individuals "who could not be contacted," inviting wonder about their fate in the trauma of accusation and exoneration.

Still available, a related report issued last year by ORI: ***Consequences of Whistleblowing for the Whistleblower in Misconduct Science Cases***. James S. Lubalin of RTI was the lead author on both reports.

Order from: Office of Research Integrity, 5515 Security Lane, Suite 700, Rockville, Md. 20852; tel. 301/443-5300; fax 301/443-5351.

From the General Accounting Office (GAO), no charge:
Federal Research: Changes in Electricity-Related R&D Funding (GAO/RCED-96-203; 36 pp.), says government and private funding is declining in the R&D fields covered by the title—renewables and efficiency, nuclear, fossil, fusion, and biological and environmental. As the result of Congressional reductions, the Department of Energy's budget for these activities declined from about \$1.2 billion to \$1 billion between 1995 and 1996, the GAO says, while deregulation and competition have led to sharp reductions by private utilities, with funding down from \$708 million in 1993 to \$476 million in 1996.

The GAO points out, for example, that "Florida's major utilities have eliminated nearly all of their R&D funding in order to be cost-competitive with each other and with other electricity suppliers in the region." Nationwide, utilities remain far below the level of R&D spending recommended by the National Association of Regulatory Utility Commissioners, the GAO notes. The report was requested by Rep. George Brown (D-Calif.), the senior Democrat on the House Science Committee.

Surface Transportation: Research Funding, Federal Role, and Emerging Issues (GAO/RCED-96-233; 42 pp.), finds little good to report about the Department of Transportation's (DOT) research on surface transportation, which consumed about \$2.9 billion from 1992 to 1996. The R&D is shortsighted, unadventurous and poorly coordinated, says the GAO, while noting that DOT lacks a high-level research post in its organizational structure. Few "stakeholders" in transportation systems are happy with DOT's research efforts, the GAO concludes. The report, focused on the implementation of the Intermodal Surface Transportation Efficiency Act of 1991, was requested by Chairman John H. Chafee (R-Rhode Island) and several members of the Senate Committee on Environment and Public Works.

Global Warming: Difficulties Assessing Countries' Progress Stabilizing Emissions of Greenhouse Gases (GAO/RCED-96-188; 33 pp.), states that "data are incomplete, unreliable, and inconsistent" for tracking compliance with the reductions in emissions of greenhouse gases by the US, other developed nations, the former Soviet Union and Eastern European countries—the so-called Annex I adherents to the 1992 UN Framework Convention on Climate Change. The report notes, however, that recent estimates by the US Energy Information Administration and the International Energy Agency indicate that Germany and the UK are the only major developed countries that will meet the goal of returning greenhouse-gas emissions to 1990 levels by the year 2000. Canada, Italy, Japan and the US "are unlikely to meet the goal," according to the report, which was requested by Rep. John Dingell (D-Mich.), senior Democrat on the House Commerce Committee.

Military Base Closures: Reducing High Costs of Environmental Cleanup Requires Difficult Choices (GAO/NSIAD-96-172; 29 pp.), reports that \$3.4 billion has been allocated for cleanup of hundreds of military bases and sites, but estimates the ultimate bill will exceed \$11 billion. Noting the "severity of contamination" at many locations, the GAO says the hazardous wastes include solvents, corrosives, paint strippers, thinners, lead, cadmium, chromium, nerve agents and explosives—mostly dumped in a time of laxer environmental rules. Listed as possible means of reducing costs: deferring cleanups where no risk to health is involved; lowering standards; more effective cleanup technologies, and sharing costs with parties acquiring the sites. The report was requested by Rep. William H. Zeff Jr., Chairman of the Subcommittee on National Security, International Affairs, and Criminal Justice, of the House Committee on Government Reform and Oversight.

NASA Infrastructure: Challenges to Achieving Reductions and Efficiencies (GAO/NSIAD-96-187; 33 pp.), warns of a shortfall between NASA's stated goals for cutting back on facilities and staff and steps in that direction. Among staff members and communities affected by NASA's reductions, the GAO found "perceptions of the lack of fairness and impartiality in the decision-making process."

Order from: USGAO, PO Box 6015, Gaithersburg, Md. 20884-6015; tel. 202/512-6000; fax 301/258-4066.

(Continued on Page 7)

